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Psychological Trauma: Theory, Research, Practice, and Policy

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The Predictive Value of Trauma-Related Coping Self-Efficacy for Posttraumatic Stress Symptoms: Differences Between Treatment-Seeking and Non-Treatment-Seeking Victims

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Objective: To assess and compare the (independent) predictive value of trauma-related coping self-efficacy (CSE) for posttraumatic stress symptoms (PTSS) among a treatment sample and a comparison group of nontreatment seeking victims. **Method:** Both the treatment ($N = 54$) and comparison group ($N = 144$) were exposed to potentially traumatic events (PTEs), experienced a heightened level of PTSS ($IES > = 19$), and were matched on work status and time between PTE and first measurement (T1). Respondents completed both baseline (T1) and follow-up measures (T2) approximately 8 months after T1. **Results:** Multiple regression analyses among the treatment sample showed that neither PTSS at T1 (start of treatment) nor CSE levels at T1 predicted PTSS at T2 among the treatment group. Among the comparison group, higher CSE levels at T1 and younger age were significantly associated with lower PTSS at T2. In both the treatment group and the comparison group PTSS levels were significantly lower at T2 than at T1. As expected, treatment seeking victims have higher PTSS and lower CSE levels than nontreatment seeking victims. **Conclusions:** Pretreatment CSE did not affect recovery during treatment: higher pretreatment CSE perceptions do not give treated individuals an advantage while CSE is predictive of PTSS among untreated victims.

Keywords: comparison group, coping self-efficacy, posttraumatic stress, psychotherapy, treatment

Trauma-related coping self-efficacy, the perceived ability to cope with posttrauma recovery demands, plays an important role in psychological recovery after trauma. A meta-analysis (Luszczynska, Benight, & Cieslak, 2009) demonstrated that higher CSE levels were consistently associated with lower levels of distress and posttraumatic stress symptom (PTSS) levels in cross-sectional and longitudinal studies. CSE perceptions have been shown to influence immediate as well as long-term distress levels after very diverse traumatic events such as disasters, terrorist attacks, motor vehicle accidents, combat and domestic violence (Benight, Cieslak, Molton, & Johnson, 2008; Benight et al., 2000; Benight, Harding-Taylor, Midboe, & Durham, 2004; Bosmans, Benight, Van der Knaap, Winkel, & Van der Velden, 2013). CSE affects posttraumatic distress through several mechanisms. First, CSE affects appraisal of the event by the belief of one's capability to deal with the challenges posed by the traumatic event and its

aftermath. If the consequences of an event are deemed relevant to one's well-being and situational demands of the event outweigh someone's perceived coping options, this will result in stress (Bandura, 1997; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Second, CSE directly influences the use of effective coping strategies, thereby affecting the long-term stressfulness of the event (Benight et al., 1999; Benight & Bandura, 2004; Kraaij, Garnefski, & Maes, 2002). Third, CSE perceptions impact the evaluation of any existing (initial) symptoms of distress: the belief that one can relieve such symptoms makes them less distressing (Kent, 1987; Kent & Gibbons, 1987). In other words, higher levels of CSE can be considered a protective factor for posttraumatic stress symptoms. Those with lower levels of trauma-related CSE are more at risk for higher levels of posttraumatic stress symptoms at a later stage.

Importantly, in the aforementioned studies on the role of CSE in psychological recovery after trauma, no distinction was made between treatment-seeking and non-treatment-seeking respondents. This (implicitly) suggests that their findings are applicable to those who do and those who do not seek and receive treatment for PTSD or severe PTSS levels. Studies have shown that a variable portion of victims of potentially traumatic events (PTEs) do seek and receive treatment at an earlier or later phase (cf. Amaya-Jackson et al., 1999; Rodriguez et al., 2003; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). However, to the best of our knowledge, to date no study has examined to what extent CSE perceptions at, for example, the start of treatment predict PTSD or symptom-reduction at follow-up. Studies examining fac-

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tors related to symptom-levels at follow up or symptom-reduction during PTSS treatment have primarily focused on demographics and symptom severity/complexity or comorbidity at baseline (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005; Forbes et al., 2008; Karatzias et al., 2007; Rizvi, Vogt, & Resick, 2009; Schottenbauer, Glass, Arnkoff, Tendick, & Hafter Gray, 2008; Tarrier, Sommerfield, Pilgrim, & Faragher, 2000; Van Minnen, Arntz, & Keijsers, 2002).

Because CSE and PTSS are inversely related, we might expect that treatment seeking victims exhibit both higher levels of PTSS and lower levels of CSE than victims who do not seek treatment. The first group will perceive themselves to be not very capable in managing the posttraumatic recovery demands without professional help. However, this does not necessarily mean they are unable to cope; acknowledging the fact that one needs help can also be seen as an active problem-focused coping strategy. Knowing when you cannot overcome the consequences of a traumatic event without help is not by itself a bad sign of future recovery when this realization leads to seeking professional help that is, treatment. In other words, differences in CSE perceptions between treatment seeking and nontreatment seeking victims must presumably be viewed in terms of differences in levels of perceptions and not dichotomized (self-efficacy vs. no self-efficacy). However, thus far studies have not assessed these differences (lower CSE levels in combination with higher PTSS levels).

It is unclear whether pretreatment levels of CSE will predict recovery among those treated for posttraumatic stress symptoms. After all, psychotherapy specifically aims to reduce symptoms of psychopathology, and may disrupt the “normal” recovery process. It is expected that, given the proven effectiveness of treatment (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013; Chen et al., 2014; Bradley, Greene, Russ, Dutra, & Westen, 2005; Ehling et al., 2014), most patients will recover or at least experience a significant reduction in symptom levels. Those receiving psychotherapy will likely experience substantial relief from posttraumatic stress symptomatology despite being unconvinced of their own ability to overcome the trauma before start of treatment. This suggests that once people enter into therapy, their preexisting CSE perceptions might become less relevant.

The aim of the present prospective comparative study is to gain insight in (dis)similarities on these topics between treatment seeking and nontreatment seeking victims. Research questions are: (a) what are the differences in the independent predictive values of trauma-related CSE between adults receiving psychotherapy for PTSS (treatment group) and untreated adults confronted with potentially traumatic events (comparison group), and (b) to what extent do CSE and PTSS levels differ between the treatment group (before treatment) and untreated comparison group. In the present study we focus on adults who are employed.

Method

Participant Characteristics and Sampling

To ensure that both samples had at least a base level of PTSS, respondents with relatively low levels of event-related intrusions and avoidance at T1 were excluded. Without this selection we would be comparing those with (almost) no PTSS with those with high levels of PTSS; in the untreated group only a portion expe-

rienced a clinically significant level of symptoms. For this we used the cutoff level $IES \geq 19$ signifying a high level of symptoms as inclusion criterion (Chung, Werrett, Farmer, Easthope, & Chung, 2000; Horowitz, 1982).

Treatment group. Outpatients referred to therapy through the IVP (Institute for Psychotrauma in 2012–2014) for PTSD or severe PTSS were approached through telephone and e-mail. Because the IVP supports companies and institutions in providing mental health care services for employees after experiencing potentially traumatic events, only employed respondents were included in this sample. Outpatients received either trauma-focused cognitive-behavioral therapy (CBT), or CBT supplemented with Eye Movement Desensitization and Reprocessing (EMDR). Written questionnaires were sent by regular mail. Participants gave written consent. Response rate at T1 (start of treatment for the treatment group) was 36.2% (147 out of 406 approached outpatients). Participants were given questionnaires at start of treatment and approximately 7 months later. Response rate at T2 (approximately 7 months after T1) was 53.1%. Those who participated at both measurement points (full participants) and who had an IES-total score of 19 or higher at T1 were included ($N = 54$, 69.2% of full participants).

Comparison group. The comparison group comprised respondents from the LISS panel, a representative community sample that consists of individuals who are invited frequently to complete online questionnaires. The panel is operated by the CentERdata research institute in Tilburg, The Netherlands, and is based on a traditional random sample drawn from the population register by Statistics Netherlands (for more information see: www.lissdata.nl); 7,495 panel members were approached for the current study on CSE and PTSS. The response rate was 78.4% ($N = 5,879$). Of these, 2,137 respondents indicated they had experienced a PTE (e.g., severe accidents, assaults and threats, fires and disasters, severe illness, property crimes, loss of a loved one) in the two years before our study on trauma in 2012. Further details of the LISS panel and the study on trauma can be found in Van der Velden, Bosmans, and Scherpenzeel (2013). Respondents filled out follow-up questionnaires 4 and 8 months after T1 (initial measurement for the comparison group, response T1 = 78.4%, response T2 = 77.7%). To match the treatment group, only those active in the workforce (through paid employment, freelance work or work in a family business) were included. Just as in the treatment group, only participants with an IES-total score of 19 or higher at T1 were selected. To match the time interval between the pre- and postmeasurement as closely as possible to the treatment group, PTSS levels at 8 months after T1 were used as outcome. The comparison group was also matched on time since the PTE, with the same proportion of respondents in each of the three time categories (0–6 months, 7–12 months, and 13–24 months since the PTE), so that any differences in PTSS trajectories are not due to a different period in recovery. Included subjects participated in the surveys on trauma at T1 and 8 months after T1. These selections led to a final sample size of 144.

Measures

Respondents in the treatment group were asked to report the PTE(s) that has led to seeking treatment. Respondents in the comparison group were asked to report PTEs experienced in the two years before

our study on trauma (2012). If more than one PTE was reported, respondents were asked to focus on the most severe event. We used the following demographic information relevant to our research: age and gender.

The 7-item Coping Self-Efficacy Measure (Bosmans, Van der Knaap, & Van der Velden, 2015; Van der Velden et al., 2013) was administered to assess CSE. Respondents rated their perceived efficacy on dealing with different consequences of the PTE on a 7-point scale. For each item, respondents rated their perceived efficacy on dealing with different consequences of the disaster on a 7-point scale (e.g., 'resuming normal life'; 'dealing with frightening images or dreams about the event'; 'being optimistic since the event'). Possible scores range from 7 (*lowest self-efficacy*) to 49 (*highest self-efficacy*). In this study the internal consistency of the CSE scale in both the treatment and comparison group was high ($\alpha = .86$ and $\alpha = .87$, respectively).

Event-related PTSS were measured using the original 15-item Impact of Event Scale (IES, Horowitz, Wilner, & Alvarez, 1979) and the 6 hyperarousal items of the Impact of Event Scale—Revised (IES-R, Weiss & Marmar, 1997). The original scoring system of the IES was used, however (respondents were asked how often they suffered from symptoms in the past week on a 4-point measurement scale, with 0 indicating *not at all*, 1 *indicating rarely*, 3 *indicating sometimes*, and 5 *indicating often*). We will call this version of the IES(-R) the IESplus. This approach has been used in previous research (cf. Pfefferbaum et al., 2003; Van der Velden et al., 2013). The benefit of this approach is its comparability with results obtained using the original IES, while still allowing for the measurement of all three symptom clusters of PTSD (*Diagnostic and Statistical Manual of Mental Disorders*, fourth edition). Furthermore, cutoff scores are available on the original IES to determine symptom severity, which are not yet available for the composite IESplus. The construct validity and reliability of the Dutch version of the IES was acceptable across different traumatic experiences (Van der Ploeg, Mooren, Kleber, Van der Velden, & Brom, 2004). Cronbach's alpha for the IESplus total score in the present samples were high ($\alpha = .84$ and $.82$ for the treatment and the comparison groups respectively).

Analyses

All analyses were conducted in SPSS version 21 (IBM, 2012). Differences between treatment group and comparison group were assessed using chi-square analyses and *t* tests. The strength of significant differences in mean scores was assessed using Cohen's *ds*.

Using hierarchical linear regression we investigated the independent predictive value of CSE perceptions as follows: at Step 1 demographics (age, gender) and time since the event were entered. At Step 2 CSE perceptions at T1 were entered. At Step 3, PTSS levels at T1 were entered. The model was specified separately for the treatment group and the comparison group.

Results

Descriptives

Among the treatment group, there were no significant differences between full participants (those who participated in both measurement points) and dropouts. Among the comparison group, comparisons of the final matched sample with dropouts active in the workforce with an IES score of 19 or higher at T1 showed that dropouts were younger ($M = 43.28$, $SD = 10.51$, and $M = 48.06$, $SD = 10.93$), $t(252) = -3.589$, $p < .001$.

Table 1 shows the characteristics for the treatment group and the comparison group. Comparisons of the two samples showed some significant differences. Among the treatment group, there was a greater proportion of men. The treatment group also had much higher mean levels of PTSS at T1 and T2 (Cohen's $d > 1.0$) and somewhat lower mean CSE levels at T1 (Cohen's $d < .05$). Furthermore, in both the treatment group ($M = 65.45$, $SD = 20.99$ and $M = 30.59$, $SD = 25.98$; $t(53) = 8.017$, $p < .001$) and the comparison group ($M = 40.45$, $SD = 14.98$ and $M = 19.85$, $SD = 18.12$; $t(143) = 11.449$, $p < .001$), PTSS levels were significantly lower at T2 than at T1.

Table 1
Sample Characteristics

Characteristic	Treatment group (<i>N</i> = 54)		Comparison group (<i>N</i> = 144)		Treatment versus control	
	<i>M</i> / <i>%</i>	<i>SD</i>	<i>M</i> / <i>%</i>	<i>SD</i>	<i>p</i>	<i>d</i>
Age (years)	48.83	10.31	48.06	10.93		
Gender (male)	64.8		42.4		**	
Time since event						
0–6 months	70.9		70.8			
7–12 months	10.9		11.1			
13–24 months	18.2		18.1			
Type of treatment						
CBT only	13					
CBT with EMDR	87					
Treatment completed at T2 ^a	76.9					
PTSS (T1)	65.45	20.99	40.45	14.98	***	1.37
PTSS (T2)	30.58	25.98	19.85	18.12	***	.48
CSE (T1)	29.57	7.5	37.78	6.91	***	–1.14
CSE (T2)	39.14	8.26	39.64	6.99		

^a Treatment completed signifies that patients do no longer receive treatment.

** $p < .01$. *** $p < .001$.

Regression

In Table 2 the results of the multiple regression analyses among the treatment group and the comparison group are shown. In the treatment group, only 1.7% of variance in PTSS levels 7–8 months after start of treatment was explained in the final model. Adding CSE to the model only increased explained variance by 0.4%. Initial PTSS levels at T1 also explained only a very limited amount of variance (0.3%) in PTSS at T2 when they were added to the model. Strikingly, none of the variables in the models was significantly associated with PTSS outcomes. Not even symptoms at start of treatment were associated with symptoms at T2.

In the comparison group, 14.1% of variance in PTSS levels was explained by the final model. Adding CSE to the model in Step 2 increased explained variance by 5%. Only 0.2% additional variance was explained by adding PTSS at T1 to the model in Step 3. When we look at specific predictors in the final model, the influence of age was greatest ($\beta = .24$, $t = 3.029$, $p = .003$) with older age associated with higher PTSS levels at T2, immediately followed by CSE levels at T1 ($\beta = -.21$, $t = -2.499$, $p = .014$), with higher scores on CSE perceptions prospectively associated with lower levels of PTSS at T2. PTSS levels at T1 were not significantly associated with levels at T2. For full information on the correlations between study variables among the treatment group and the comparison group (see Table 3).

Discussion

The goal of this study was to examine the predictive value of CSE for posttraumatic stress symptoms at follow-up among treatment-seeking and non-treatment-seeking individuals with higher symptom levels. Findings showed that among the untreated comparison group CSE level was an independent predictor of levels of PTSS at follow-up. Yet among traumatized individuals receiving treatment for PTSS, CSE perceptions at the start of the treatment was not an independent predictor for PTSS severity at follow-up although they did experience a significant reduction in PTSS. Their relatively low CSE levels at start of treatment did not affect this recovery. Among the comparison group CSE was independently predictive of symptom levels about 8 months later:

Table 3

Correlations Between Study Variables

Variable	1	2	3	4	5	6
1. Age	—	-.019	.082	.275**	-.132	-.052
2. Time since the event	-.009	—	-.020	.059	.012	-.099
3. PTSS T1	.121	-.384**	—	.159	-.347***	-.170*
4. PTSS T2	.093	.121	.086	—	-.266**	-.297***
5. CSE T1	.083	.161	-.370**	-.059	—	.600***
6. CSE T2	-.062	-.154	-.132	-.446**	.362**	—

Note. Correlations of the treatment group below the diagonal, correlations of the comparison group above the diagonal.

* $p < .05$. ** $p < .01$. *** $p < .001$.

recovery was less for those with low CSE levels. The predictive value of CSE among the comparison group is less than that found in previous studies (e.g., Benight & Bandura, 2004; Luszczynska et al., 2009). When interpreting this effect, it is important to realize that to match the treatment group, the comparison group is very heterogeneous with regard to the time since the event took place compared with other longitudinal studies where respondents are assessed in the same fixed postevent period (or moment). The same is of course true for the treatment group, but it could be argued that their experience between T1 and T2 is more homogenous: they all received treatment for PTSS. It is possible that the modest effect size of CSE among the comparison group is attributable to a change in the associations between CSE and PTSS. Previous research investigating the longitudinal interplay between PTSS and social support (Kaniasty & Norris, 2008) found that over time, the direction of influence changed. In the short term social support predicted PTSS (as was shown for CSE in Bosmans & van der Velden, 2015), but over time PTSS predicted social support. It is possible that a similar reversal takes place in the relationship between CSE and PTSS. The heterogeneity with regard to the time since the PTE could also explain the fact that PTSS levels at T1 were not significantly associated with PTSS levels at T2 among the comparison group. To investigate whether these results are a result of heterogeneity with regard to the time since the PTE, we

Table 2
Hierarchical Multiple Regression Predicting PTSS

Step	Treatment group ($N = 54$)					Comparison group ($N = 144$)				
	ΔR^2	B	SE	β	p	ΔR^2	B	SE	β	p
Step 1										
Gender	.010	-2.391	8.1	-.044		.089**	4.205	2.939	.115	
Age (years)		.193	.379	.077			.450	.133	.271	**
Step 2										
Gender	.004	-1.241	8.646	-.023		.05**	3.635	2.875	.099	
Age (years)		.226	.390	.090			.401	.131	.242	**
CSE (T1)		-.210	.517	-.061			-.594	.208	-.226	**
Step 3										
Gender	.003	-1.931	8.877	-.036		.002	3.320	2.937	.091	
Age (years)		.188	.404	.075			.399	.132	.240	**
CSE (T1)		-.11	.574	-.032			-.553	.221	-.211	*
IESplus (T1)		.081	.195	.065			.058	.103	.048	
Total R^2	.017					.141				

* $p < .05$. ** $p < .01$.

conducted control- analyses among respondents of the comparison group who were confronted with a PTE (0–6) months before T1 ($N = 102$). We limited these control analyses to the comparison group because of the limited sample size of the treatment group for whom the PTE was 0–6 months before T1 ($N = 38$). We examined bivariate correlations between CSE and PTSS at T1 with PTSS at T2, and we repeated exactly the same MR analyses among this group. The bivariate associations between CSE at T1 and PTSS at T2 ($r(102) = -.33, p < .001$) and between PTSS at T1 and T2 ($r(102) = .35, p < .001$) were indeed stronger than among the complete comparison group. Results of the MR analysis showed that the effect of CSE perceptions on PTSS levels at T2 was similar to that found in the entire comparison group ($\beta = -.22, t = -2.302, p = .023$). However, among this group, PTSS levels at T1 were also independently associated with PTSS levels at T2 ($\beta = .26, t = 2.564, p = .012$). Finally, within this group explained variance was also greater than among the complete comparison group: 19.5% compared with 14.1% (complete results available from first author). Results of these additional control analyses among the smaller sample showed that the heterogeneity of the comparison group with regard to the time since the PTE indeed affected the associations of CSE and PTSS at T1 with PTSS levels at T2. The fact that the independent effect of CSE levels at T1 was not stronger among this relatively more homogeneous group is probably the result of the much stronger predictive power of PTSS levels at T1. The autoregressive effect of PTSS levels is not unusual: the best predictors of long term symptoms are often earlier symptoms (e.g., van der Velden & Wittmann, 2008). Because of low cell counts and given the number of predictors, we were not able to assess the predictive values of PTSS and CSE at baseline for PTSS at follow-up among the treatment sample confronted with PTE in the past 6 months ($N = 37$).

Results showed that once traumatized individuals receive treatment, previous CSE levels matter less. Individuals who received treatment report a reduction of symptom levels despite low pretreatment perceptions of being able to deal with the impact of the trauma. This shows that once traumatized individuals seek help, pretreatment CSE does not affect their chance of significant recovery: when individuals receive treatment, they are able to overcome the perpetuating effect CSE perceptions normally have on PTSS. Higher pretreatment CSE perceptions do not give treated individuals an advantage. This suggests that, because it provides no information about who will benefit (most) from treatment, therapists could ignore initial CSE levels when trying to predict the duration of treatment.

Pretreatment symptoms levels were also not predictive of recovery among the treatment group. Those with high pretreatment symptoms were not left with a higher residual level of symptoms after treatment. This finding is similar to those of the studies by Van Minnen and colleagues (2002) and Tarrier and colleagues (2000). Once in treatment, symptoms were reduced for most cases. This is completely in line with studies investigating effectiveness of treatment for PTSS. These show that most patients will recover or at least experience a significant reduction in symptom levels (Bisson et al., 2013; Bradley, Greene, Russ, Dutra, & Westen, 2005; Chen et al., 2014; Ehring et al., 2014).

Previous studies have shown that CSE is a very useful tool in predicting recovery from trauma on the group level (Luszczynska

et al., 2009). Results of this study move beyond these earlier studies by showing that even among a group with a relatively high level of PTSS who did not receive treatment, CSE perceptions are still predictive of recovery from posttraumatic distress, over and above the predictive value of those initial symptoms. This means that regardless of their symptom levels, victims will recover if they have high CSE levels. An additional implication is that those with low CSE levels and high levels of PTSS will not recover or will experience a smaller decrease in symptoms. According to the recent meta-analysis of Morina, Wicherts, Lobbrecht, and Priebe (2014), people experiencing PTSS for six months or more have a less than 50% chance that they recover spontaneously (without treatment). As expected, pretreatment CSE levels were much lower among the treatment group than among the comparison group. Average pretreatment PTSS levels were also higher among the treatment group. The fact that the treatment group had lower CSE levels suggests that when symptom levels are high and CSE perceptions low, people might be more likely to seek professional help, although more research is needed to investigate the effect of CSE perceptions on help-seeking behavior. To the best of our knowledge, to date no study has assessed the associations between CSE and treatment seeking behavior. Our findings suggest that once individuals receive treatment, CSE loses its independent predictive power. So among a sample treated for posttraumatic distress, CSE perceptions are not an indicator of the successfulness of therapy. This may be attributable to the effect therapy has on symptomatology, with most treated subjects experiencing a substantial recovery. Another explanation may be that CSE perceptions are no longer useful when PTSS symptoms reach a certain level. The comparison group did have relatively high PTSS levels ($IES \geq 19$), but these were certainly not as high as in the treatment group. Additional research among untreated highly symptomatic individuals would clarify which of these explanations is valid. An interesting secondary finding is that at T2, CSE levels for the treatment group and the comparison group are equal. This suggests that not only is therapy effective in reducing PTSS levels, it might have the added benefit of restoring peoples' confidence in their ability to deal with posttrauma recovery demands. It is unclear whether this is actually the result of the treatment itself, or simply a result of the substantial reduction in PTSS levels.

In addition, in the final models age was as predictive of PTSS at follow-up as initial CSE levels among the nontreatment group, but not among the treatment group (both groups did not differ in age). A possible explanation of this finding may be that younger nontreatment seeking victims were more able to employ supportive networks than older victims. Previous research has shown that social support is an important factor in posttrauma recovery (Brewin, Andrews, & Valentine, 2000; Neria, Nandi, & Galea, 2008; Ozer, Best, Lipsey, & Weiss, 2003; Van der Velden, Bosmans, Bogaerts, & Van Veldhoven, 2014). However, additional research on the relationship between age and employing support is needed.

Some characteristics and limitations of this study should be discussed. In this study, PTSS levels were assessed using a self-report measure. We did not examine PTSD using clinical interviews like the Clinician-Administered PTSD Scale (CAPS) which are considered the golden standard in assessment of PTSD. Nor did we examine patients' medical records to assess clinician rated symptoms. However, because this would not have been possible

for the comparison group, using the same self-reported measures ensures that results for the two samples can be compared. A second important limitation is the response rate among the treatment group. The response rate at T1 was half as high as that of the comparison group, although a response rate of 36.2% is not uncommon in survey studies (e.g., Green, Boser, & Hutchinson, 1998). Additional studies are needed to verify our results among other employed treatment-seeking victims, as well as among other groups of victims. Another aspect is that exposure to potentially traumatic events was measured retrospectively in both samples. This might have affected the accuracy of recall, for instance with respect to the exact time since the event (e.g., Brewin, 2007; Dekel & Bonanno, 2013). Yet because we measured current CSE levels and event-related PTSS, this will probably not have led to bias in our main variables. Another possible limitation is that the two samples were not exposed to the same type of PTEs: in the treatment group the most common PTE was physical and verbal violence (48.8%), whereas in the comparison group this was the loss of a loved one (66%). Although previous research has shown that CSE predicts recovery from PTSS over and above earlier symptom levels across a wide range of PTEs, including disasters, motor vehicle accidents, and burn injuries (Benight et al., 1999, 2008; Bosmans et al., 2013; Bosmans, Hofland, De Jong, & Van Loey, 2015), it might be that the relationship between CSE and PTSS among highly symptomatic subjects is not the same between different event types, thereby affecting results. Furthermore, the treatment group received trauma-focused treatment (CBT and/or EMDR): because of the number of patients we were unable to examine the predictive value of CSE across CBT and EMDR. However, previous efficacy studies of different treatment methods suggest that all trauma-focused therapy methods are effective in reduction of PTSD symptoms, and that no single treatment method is consistently more effective than other methods (Bradley et al., 2005; Bisson et al., 2007). Therefore, it is not expected that this limitation led to biased results. As expected, we were not able to match the comparison group completely to the treatment group. Therefore we decided to match only by the cutoff for relatively higher PTSS levels proposed by Horowitz (1982). A possible solution would be to conduct additional research among a waitlist control sample. However, this would create new difficulties. Because participants in the current study were followed for several months (approximately 7), this would mean that the comparison group would not receive treatment during this time. In addition to obvious ethical concerns associated with such a design, the compared groups would no longer be matched on the time since the PTE, which is an important strength of the current study. As said, the fact that we could not match on PTSS and CSE confirms that individuals experiencing substantial posttraumatic stress symptomatology who do not seek treatment do indeed have higher perceptions of CSE. An important strength of our study is that PTSS and CSE levels were assessed longitudinally, enabling the assessment of the prospective independent predictive value of CSE.

Future research following individuals exposed to the same (mass) event would increase our understanding of the processes at work during recovery, and the role of CSE perceptions in the decision to seek mental health care. Because of the way the treatment group was obtained, it comprised individuals active in the workforce. Additional research is needed to investigate the

effects of CSE and therapy among unemployed individuals confronted with potentially traumatic events. It is possible that the interaction between posttraumatic distress, CSE, and psychotherapy is different among unemployed or retired individuals. Although results of the current study suggest that those experiencing a high level of posttraumatic distress and who are not convinced of their ability to cope, do seek help, research is needed into the identification of possible levels of CSE at which individuals are no longer able to recover from substantial PTSS on their own. This would help with targeting mental health interventions shortly after traumatic events.

We can conclude that CSE remains important in predicting recovery from posttraumatic distress among nontreatment seeking victims with a high level of symptoms. At the same time, CSE loses its predictive value when individuals receive psychotherapy for these symptoms. A final implication of the findings in this study is that the effect of CSE perceptions on recovery from PTSS in previous studies may have been diminished by the inclusion of subjects who received psychotherapy.

References

- Amaya-Jackson, L., Davidson, J. R., Hughes, D. C., Swartz, M., Reynolds, V., George, L. K., & Blazer, D. G. (1999). Functional impairment and utilization of services associated with posttraumatic stress in the community. *Journal of Traumatic Stress, 12*, 709–724. <http://dx.doi.org/10.1023/A:1024781504756>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy, 42*, 1129–1148. <http://dx.doi.org/10.1016/j.brat.2003.08.008>
- Benight, C. C., Cieslak, R., Molton, I. R., & Johnson, L. E. (2008). Self-evaluative appraisals of coping capability and posttraumatic distress following motor vehicle accidents. *Journal of Consulting and Clinical Psychology, 76*, 677–685. <http://dx.doi.org/10.1037/0022-006X.76.4.677>
- Benight, C. C., Freyaldenhoven, R. W., Hughes, J., Ruiz, J. M., Zoschke, T. A., & Lovullo, W. R. (2000). Coping self-efficacy and psychological distress following the Oklahoma city bombing. *Journal of Applied Social Psychology, 30*, 1331–1344. <http://dx.doi.org/10.1111/j.1559-1816.2000.tb02523.x>
- Benight, C. C., Harding-Taylor, A. S., Midboe, A. M., & Durham, R. L. (2004). Development and psychometric validation of a domestic violence coping self-efficacy measure (DV-CSE). *Journal of Traumatic Stress, 17*, 505–508. <http://dx.doi.org/10.1007/s10960-004-5799-3>
- Benight, C. C., Ironson, G., Klebe, K., Carver, C. S., Wynings, C., Burnett, K., . . . Schneiderman, N. (1999). Conservation of resources and coping self-efficacy predicting distress following a natural disaster: A causal model analysis where the environment meets the mind. *Anxiety, Stress, & Coping, 12*, 107–126. <http://dx.doi.org/10.1080/10615809908248325>
- Bisson, J. I., Ehlers, A., Matthews, R., Pilling, S., Richards, D., & Turner, S. (2007). Psychological treatments for chronic post-traumatic stress disorder. Systematic review and meta-analysis. *The British Journal of Psychiatry, 190*, 97–104. <http://dx.doi.org/10.1192/bjp.bp.106.021402>
- Bisson, J. I., Roberts, N. P., Andrew, M., Cooper, R., & Lewis, C. (2013). Psychological therapies for chronic post-traumatic stress disorder (PTSD) in adults. *Cochrane Database of Systematic Reviews, 12*, CD003388.
- Bosmans, M. W. G., Benight, C. C., van der Knaap, L. M., Winkel, F. W., & van der Velden, P. G. (2013). The associations between coping self-efficacy and posttraumatic stress symptoms 10 years postdisaster:

- Differences between men and women. *Journal of Traumatic Stress*, 26, 184–191. <http://dx.doi.org/10.1002/jts.21789>
- Bosmans, M. W. G., Hofland, H. W., De Jong, A. E., & Van Loey, N. E. (2015). Coping with burns: The role of coping self-efficacy in the recovery from traumatic stress following burn injuries. *Journal of Behavioral Medicine*, 38, 642–651. <http://dx.doi.org/10.1007/s10865-015-9638-1>
- Bosmans, M. W. G., Van der Knaap, L. M., & Van der Velden, P. G. (2015). Personality traits as predictors of trauma-related coping self-efficacy: A three-wave prospective study. *Personality and Individual Differences*, 76, 44–48. <http://dx.doi.org/10.1016/j.paid.2014.11.052>
- Bosmans, M. W. G., & van der Velden, P. G. (2015). Longitudinal interplay between posttraumatic stress symptoms and coping self-efficacy: A four-wave prospective study. *Social Science & Medicine*, 134, 23–29. <http://dx.doi.org/10.1016/j.socscimed.2015.04.007>
- Bradley, R., Greene, J., Russ, E., Dutra, L., & Westen, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *The American Journal of Psychiatry*, 162, 214–227. <http://dx.doi.org/10.1176/appi.ajp.162.2.214>
- Brewin, C. R. (2007). Autobiographical memory for trauma: Update on four controversies. *Memory*, 15, 227–248. <http://dx.doi.org/10.1080/09658210701256423>
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 68, 748–766. <http://dx.doi.org/10.1037/0022-006X.68.5.748>
- Chen, Y. R., Hung, K. W., Tsai, J. C., Chu, H., Chung, M. H., Chen, S. R., . . . Chou, K. R. (2014). Efficacy of eye-movement desensitization and reprocessing for patients with posttraumatic-stress disorder: A meta-analysis of randomized controlled trials. *PLoS ONE*, 9, e103676. <http://dx.doi.org/10.1371/journal.pone.0103676>
- Chung, M. C., Werrett, J., Farmer, S., Easthope, Y., & Chung, C. (2000). Responses to traumatic stress among community residents exposed to a train collision. *Stress Medicine*, 16, 17–25. [http://dx.doi.org/10.1002/\(SICI\)1099-1700\(200001\)16:1<17::AID-SMI828>3.0.CO;2-3](http://dx.doi.org/10.1002/(SICI)1099-1700(200001)16:1<17::AID-SMI828>3.0.CO;2-3)
- Dekel, S., & Bonanno, G. A. (2013). Changes in trauma memory and patterns of posttraumatic stress. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5, 26–34. <http://dx.doi.org/10.1037/a0022750>
- Ehlers, A., Clark, D. M., Hackmann, A., McManus, F., & Fennell, M. (2005). Cognitive therapy for post-traumatic stress disorder: Development and evaluation. *Behaviour Research and Therapy*, 43, 413–431. <http://dx.doi.org/10.1016/j.brat.2004.03.006>
- Ehring, T., Welboren, R., Morina, N., Wicherts, J. M., Freitag, J., & Emmelkamp, P. M. G. (2014). Meta-analysis of psychological treatments for posttraumatic stress disorder in adult survivors of childhood abuse. *Clinical Psychology Review*, 34, 645–657. <http://dx.doi.org/10.1016/j.cpr.2014.10.004>
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50, 992–1003. <http://dx.doi.org/10.1037/0022-3514.50.5.992>
- Forbes, D., Parslow, R., Creamer, M., Allen, N., McHugh, T., & Hopwood, M. (2008). Mechanisms of anger and treatment outcome in combat veterans with posttraumatic stress disorder. *Journal of Traumatic Stress*, 21, 142–149. <http://dx.doi.org/10.1002/jts.20315>
- Green, K. E., Boser, J. A., & Hutchinson, S. R. (1998). Response-rate differences and response-enhancement effects by population type. *Psychological Reports*, 83, 336–338. <http://dx.doi.org/10.2466/pr0.1998.83.1.336>
- Horowitz, M. (1982). Stress response syndromes and their treatment. In L. Goldberg & S. Breznitz (Eds.), *Handbook of stress, theoretical and clinical aspects* (pp. 711–732). New York, NY: Free Press.
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209–218. <http://dx.doi.org/10.1097/00006842-197905000-00004>
- IBM. (2012). IBM SPSS Statistics for Windows (Version 21.0) [Computer software]. Armonk, NY: IBM Corp.
- Kaniasty, K., & Norris, F. H. (2008). Longitudinal linkages between perceived social support and posttraumatic stress symptoms: Sequential roles of social causation and social selection. *Journal of Traumatic Stress*, 21, 274–281. <http://dx.doi.org/10.1002/jts.20334>
- Karatzias, A., Power, K., McGoldrick, T., Brown, K., Buchanan, R., Sharp, D., & Swanson, V. (2007). Predicting treatment outcome on three measures for post-traumatic stress disorder. *European Archives of Psychiatry and Clinical Neuroscience*, 257, 40–46. <http://dx.doi.org/10.1007/s00406-006-0682-2>
- Kent, G. (1987). Self-efficacious control over reported physiological, cognitive and behavioural symptoms of dental anxiety. *Behaviour Research and Therapy*, 25, 341–347. [http://dx.doi.org/10.1016/0005-7967\(87\)90012-X](http://dx.doi.org/10.1016/0005-7967(87)90012-X)
- Kent, G., & Gibbons, R. (1987). Self-efficacy and the control of anxious cognitions. *Journal of Behavior Therapy and Experimental Psychiatry*, 18, 33–40. [http://dx.doi.org/10.1016/0005-7916\(87\)90069-3](http://dx.doi.org/10.1016/0005-7916(87)90069-3)
- Kraaij, V., Garnefski, N., & Maes, S. (2002). The joint effects of stress, coping, and coping resources on depressive symptoms in the elderly. *Anxiety, Stress, & Coping*, 15, 163–177. <http://dx.doi.org/10.1080/10615800290028468>
- Luszczynska, A., Benight, C. C., & Cieslak, R. (2009). Self-efficacy and health-related outcomes of collective trauma: A systematic review. *European Psychologist*, 14, 51–62. <http://dx.doi.org/10.1027/1016-9040.14.1.51>
- Morina, N., Wicherts, J. M., Lobbrecht, J., & Priebe, S. (2014). Remission from post-traumatic stress disorder in adults: A systematic review and meta-analysis of long term outcome studies. *Clinical Psychology Review*, 34, 249–255.
- Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*, 38, 467–480. <http://dx.doi.org/10.1017/S0033291707001353>
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, 129, 52–73. <http://dx.doi.org/10.1037/0033-2909.129.1.52>
- Pfefferbaum, B., Sconzo, G. M., Flynn, B. W., Kearns, L. J., Doughty, D. E., Gurwitch, R. H., . . . Nawaz, S. (2003). Case finding and mental health services for children in the aftermath of the Oklahoma City bombing. *The Journal of Behavioral Health Services & Research*, 30, 215–227. <http://dx.doi.org/10.1007/BF02289809>
- Rizvi, S. L., Vogt, D. S., & Resick, P. A. (2009). Cognitive and affective predictors of treatment outcome in Cognitive Processing Therapy and Prolonged Exposure for posttraumatic stress disorder. *Behaviour Research and Therapy*, 47, 737–743. <http://dx.doi.org/10.1016/j.brat.2009.06.003>
- Roberts, A. L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological Medicine*, 41, 71–83. <http://dx.doi.org/10.1017/S0033291710000401>
- Rodriguez, B. F., Weisberg, R. B., Pagano, M. E., Machan, J. T., Culppeper, L., & Keller, M. B. (2003). Mental health treatment received by primary care patients with posttraumatic stress disorder. *Journal of Clinical Psychiatry*, 64, 1230–1236. <http://dx.doi.org/10.4088/JCP.v64n1014>
- Schottenbauer, M. A., Glass, C. R., Arnkoff, D. B., Tendick, V., & Gray, S. H. (2008). Nonresponse and dropout rates in outcome studies on PTSD: Review and methodological considerations. *Psychiatry: Inter-*

- personal and Biological Processes*, 71, 134–168. <http://dx.doi.org/10.1521/psyc.2008.71.2.134>
- Tarrier, N., Sommerfield, C., Pilgrim, H., & Faragher, B. (2000). Factors associated with outcome of cognitive-behavioural treatment of chronic post-traumatic stress disorder. *Behaviour Research and Therapy*, 38, 191–202. [http://dx.doi.org/10.1016/S0005-7967\(99\)00030-3](http://dx.doi.org/10.1016/S0005-7967(99)00030-3)
- Van der Ploeg, E., Mooren, T. T., Kleber, R. J., Van der Velden, P. G., & Brom, D. (2004). Construct validation of the Dutch version of the impact of event scale. *Psychological Assessment*, 16, 16–26. <http://dx.doi.org/10.1037/1040-3590.16.1.162004-11653-003>
- van der Velden, P. G., Bosmans, M. W. G., Bogaerts, S., & van Veldhoven, M. J. P. M. (2014). Social organizational stressors and post-disaster mental health disturbances: A longitudinal study. *Psychiatry Research*, 219, 177–182.
- van der Velden, P. G., Bosmans, M. W. G., & Scherpenzeel, A. C. (2013). The burden of research on trauma for respondents: A prospective and comparative study on respondents evaluations and predictors. *PLoS ONE*, 8, e77266. <http://dx.doi.org/10.1371/journal.pone.0077266>
- van der Velden, P. G., & Wittmann, L. (2008). The independent predictive value of peritraumatic dissociation for PTSD symptomatology after type I trauma: A systematic review of prospective studies. *Clinical Psychology Review*, 28, 1009–1020. <http://dx.doi.org/10.1016/j.cpr.2008.02.006>
- van Minnen, A., Arntz, A., & Keijsers, G. P. J. (2002). Prolonged exposure in patients with chronic PTSD: Predictors of treatment outcome and dropout. *Behaviour Research and Therapy*, 40, 439–457. [http://dx.doi.org/10.1016/S0005-7967\(01\)00024-9](http://dx.doi.org/10.1016/S0005-7967(01)00024-9)
- Weiss, D. R., & Marmar, C. R. (1997). The impact of event scale-revised. In J. P. Wilson (Ed.), *Assessing psychological trauma and PTSD* (pp. 399–411). New York, NY: Guilford Press.

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